FINAL

AN/SSQ-33A/B(V)
SHIPS AUTOMATED COMMUNICATIONS CONTROL SYSTEM
(SACCS)

FRONT-END ANALYSIS REPORT

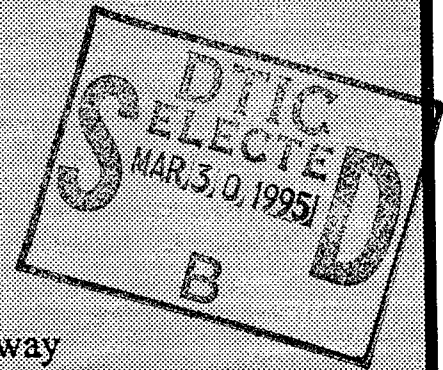### PREPARED FOR

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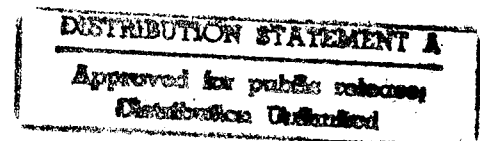SEMCOR, Inc.
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Table Of Contents

I. **Requirement.** This Front End Analysis (FEA) is the result of an examination of knowledge, skills and abilities required for successful job performance and identifies various training options for the Ships Automated Communications Control System (SACCS.) *This is a requirement of OPNAVINST 1500.73 for Interactive Courseware (ICW).*

SACCS provides automated control of the communications equipment onboard a Navy ship from control of the keylines to the antennas including baseband, transmit, and receive functions. SACCS is a rehost of the Surface Ship Exterior Communications Control System (SSECCS) used onboard the LHD ship class from AN/UYK-43(V) closed architecture computer to a TAC 3 open architecture computer. Since this is a new system, no equipment will be replaced.

Operator and maintenance training is required to support this system throughout its life cycle. Initial training will be provided by ICW and the Software Support Activity (SSA). Replacement/conversion training for individual operators and technicians at the organization level is required to support this system. No intermediate or depot level training is required. **No training currently exists for SACCS.**

II. **Training Analysis.**

II.A. **Training Situation.**

II.A.1. **Subject.** The AN/SSQ-33A will be installed in AOE-10 and is programmed for ship classes CG and below; the AN/SSQ-33B will be installed in LCCs, LHDs, LHAs, CV/CVNs and all other large ship classes. Operator training is required for Radiomen (RM) and maintenance training is required for Electronics Technicians (ET). Navy Training Plan Draft AN/SSQ-33A/B Ships Automated Communications Control System (SACCS) (NTP E-70-94XX) dated July 1994 refers.

II.A.2. **Performance Requirements.** Operator training will be needed for the design of the shipboard Radio Communication System (RCS) based on an operational communications plan, initiation of the RCS configuration, modifying the RCS configuration, and requesting reports that indicate the status and availability of RCS equipment and for performing operator maintenance.

Training for organization level maintenance personnel will consist of preventive maintenance (PM) and corrective maintenance (CM). PM consists of inspecting, servicing, lubricating, and adjusting. CM will consist of diagnosing faults to the lowest replaceable unit (LRU) using built-in-test (BIT), General Purpose Test Equipment (GPETE), and preprogrammed fault monitoring and diagnostic features.

No Personnel Performance Profile (PPP) tables exist for SACCS. These tables will be developed as part of the overall training application development process. All

personnel will become familiar with personnel and equipment safety precautions that are to be observed when performing operations and maintenance.

II.B. Training Objectives. The initial ICW package will be sufficient to enable the crew to perform successfully through Development Test/Operational Test (DT/OT.) The following learning objectives represent sufficient replacement/conversion training.

Operator Knowledge:

1. State the purpose, function and location of the SACCS and describe the documentation provided for use with the SACCS.

2. Describe the theory and associated documentation necessary to support and understand the performance of operational tasks and operator maintenance associated with on-watch responsibilities, without going into logic, circuits, program flow diagrams, or mechanical component breakdown of the SACCS.

Operator Skills:

1. Perform operational tasks and operator maintenance with supervision on the SACCS.

Maintenance Knowledge:

1. State the purpose, function and location of the SACCS and describe the documentation provided for use with the SACCS.

2. Describe the theory and associated documentation necessary to support and understand the performance of all preventive maintenance and documented fault isolation and repair without going into detailed logic, circuit analysis, individual program flow diagrams, or detailed mechanical component breakdown of the SACCS.

Maintenance Skills:

1. Perform preventive maintenance procedures with supervision on the SACCS.

2. Perform documented fault isolation and repair procedures (corrective maintenance) to the authorized maintenance level, with supervision, on the SACCS.

II.C. Training Application. ICW will provide all formal training for the SACCS and be implemented at the organization level. While not strictly considered embedded

training, ICW will be developed to run on the ship's operational SACCS which uses the Unix Operating System.

II.D. Functional Requirements. There are two alternatives for formal training for SACCS operators and maintenance personnel.

(1) Interactive Courseware.

(2) Formal school training.

II.D.1. Number/Locations/RFT. The initial ICW will be delivered to the ship when SACCS is ready for operational use. A full replacement/conversion ICW package could be ready for training in FY96. Requirements for alternative (2) are listed below. In either case, no training equipment would be replaced.

Number	Location	RFT
1	FTCLANT	7/96
1	FTCPAC	7/96

Note: Installation of only one suite of hardware at each site would require the sharing of assets between the operator and maintenance courses and not provide any backup in the event of system failure during a course.

II.D.2. Students. Projected student flow is based on the current shipboard installation schedule and operator/maintenance training requirements by fiscal year (FY) as reflected in the Navy Training Plan.

	FY95	FY96	FY97	FY98	FY99	FY00
Operator	7	14	35	14	14	21
Maintenance	1	2	5	2	2	3

II.D.3. Instructors/Support. Alternative (1) will not require instructor support. Alternative (2) will require three instructors per site: two for operator and one for maintenance training.

II.D.4. Facilities. ICW will not require supporting facilities; training will take place onboard at the operational computer. Facilities requirements for formal school training will be developed if alternative (2) is selected.

II.D.5. Documentation. Lesson Plans, Trainee Guides, training aids and technical manuals will be required to support formal school training if selected. User and Manager Guides will be required for each ICW application. All training development documentation will be prepared in accordance with MIL-STD-1379D DIDs and provided to the designated Life Cycle Manager. ICW development documents and media files will be archived on magnetic media.

II.D.6. Reserves/Joint Services/Foreign Military Applicability. Not applicable.

II.D.7. Fleet Training Requirements. Not applicable.

III. Logistic, Configuration Management and Contractor Support Considerations. Integrated Logistics Support (ILS), Configuration Management and/or Contractor Support requirements will be driven by the training alternative selected. Once a final determination has been made, the SACCS ILSP, Configuration Management Plan, and NTP will reflect all associated support requirements. Spare parts and hardware/software management will be required for all training equipment installed in schools. ICW will require software configuration management only.

IV. Alternatives Comparison. ICW is considered the only media alternative to schoolhouse training that will meet the required learning objectives.

The advantages/disadvantages and rough order of magnitude (ROM) costs that follow are based on a comparison of ICW and schoolhouse training. The primary criteria for comparison is life-cycle cost, facility requirements, training equipment requirements.

School Training	Interactive Courseware
Advantages	**Advantages**
Instructor interface	Self-Paced
Hands on with system	Training conducted on ship/site
Lower training materials development cost	Significantly lower life cycle cost
	No support staff required

6

Disadvantages		**Disadvantages**	
Higher life cycle costs		Higher up-front development cost	
Two SACCS, ancillary equipment and spare parts required for schools		Operational computer will not always be available for training when needed.	
ROM$ (FY95-00)		**ROM$ (FY95-00)**	
Training Equipment	$1.5M	Development and distribution	350K
Training Material development and update	$500K	Courseware updates	600K
Staff/Student salaries	$1.68M		
Total:	**$3.68M**	**Total:**	**$950K**

$2.73 million in savings would be realized using ICW.

Note: ROM costs do not include student TAD and travel for school training.

Rationale For Selection: Multimedia ICW is the most cost effective means of meeting operator and maintenance training objectives over the life-cycle of the SACCS. ICW will eliminate the requirement for using operational systems exclusively for training, and can be developed and fielded rapidly to meet emerging fleet needs. ICW would allow for later integration of the training application with system Interactive Electronic Technical Manuals. This approach would provide an even more powerful combined learning and troubleshooting tool.

V.   **DITIS Search.** A search of the Defense Instructional Technology Information System (DITIS) was conducted; no government or commercial courseware is available for SACCS. The results of the search are included under separate cover. There are two courses available which cover basic Unix commands. Those courses will be evaluated to determine their suitability for use in conjunction with the ICW.

VI.   **Resource Impact**

VI.A. Resource Requirements. ICW will not require any training facilities, instructors, or support staff to conduct training. The following figures reflect the cost of replacement/conversion training for operator and maintenance ICW application, supporting documentation development, and developing contractor life-cycle management through FY00.

FY95	FY96	FY97	FY98	FY99	FY00
350K	250K	200K	50K	50K	50K

VI.B. Acquisition Strategy. The interim training ICW will be procured under an existing time and materials contract that will be delivered when SACCS is ready for operational use. All courseware developed, including authoring software and supporting documentation, will become property of the U. S. Government.

VII. Milestones. Acquisition and delivery of the interim ICW package will be in FY95.

VIII. Actions/Decisions. A life cycle training determination is required to decide which method of training will be used for replacement/conversion training.

The Training Effectiveness Evaluation (TEE) Plan will contain two basic parts. The Operational Effectiveness Evaluation will estimate the operational effectiveness and suitability and identify needed modifications to courseware or operator requirements. The Student Performance Evaluation will measure the degree to which the ICW leads to the achievement of the learning objectives.

The ICW acquisition and development schedule preclude development and approval of a TEE Plan one year prior to conducting a TEE. The TEE Plan will be submitted for approval by 31 January 1995 and the TEE can be conducted six months after ICW implementation.

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